

## Article

# Head Positioning in Acute Stroke [Correspondence]

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Disclosure forms provided by the authors are available with the full text of this letter at NEJM.org.

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## Head Positioning in Acute Stroke

**TO THE EDITOR:** Anderson et al. (June 22 issue)<sup>1</sup> report that head positioning did not influence outcome in patients with acute stroke. The lying-flat position theoretically increases cerebral perfusion, which may alleviate acute ischemia through the recruitment of collaterals.<sup>2</sup> However, in the Head Positioning in Acute Stroke Trial (HeadPoST), reported by Anderson et al., many patients had conditions that presumably were not the result of large perfusion defects: specifically, there were patients with stroke mimics (4.9%), lacunar stroke (30.2%), or intracerebral hemorrhage (8.4%). Moreover, the low median scores on the National Institutes of Health Stroke Scale in both study groups<sup>1</sup> suggest that few patients had proximal occlusions of the intracranial arteries, which implies that many patients did not require improvement in their collateral cerebrovascular network during acute stroke. The absence of large ischemic stroke has been proposed as a possible reason for the failure of endovascular therapy to show clinical benefit in some recent trials.<sup>3,4</sup> Head positioning therefore might be evaluated in a more selective population, such as patients with large strokes or large ischemic areas at risk,<sup>5</sup> before we give up on this nonpharmacologic strategy.

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**TO THE EDITOR:** We write to request clarification of the consent process used in HeadPoST, in which hospital executives provided institutional consent to implement an intervention and patients provided individual consent only for postintervention data collection and follow-up. Although cluster-randomized trials that expose groups to a common intervention (e.g., community water sanitation) often preclude prospective individual consent, the bed-position intervention in HeadPoST addressed individual patients (which makes it an “individual-cluster” trial).<sup>1</sup> Time constraints<sup>2</sup> seemingly did not preclude consent: interventions were initiated a median of 7 hours after hospital arrival and continued for 24 hours. The investigators describe the study as having “minimal risk,” which is generally defined as risk that is similar to the risks involved in daily life (and is distinct from equipoise).<sup>3</sup> But HeadPoST was directed at brain perfusion in acute stroke and was designed to detect effects on disability at 90 days. A final

rationale the authors provided for cluster consent is the avoidance of response bias, but this rationale could conceivably apply to the forgoing of consent in any clinical trial. Thus, it remains unclear to us that sufficient justification has been provided for bypassing the step of obtaining individual consent from participants.

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No potential conflict of interest relevant to this letter was reported.

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**TO THE EDITOR:** In their evaluation of head positioning after acute stroke, Anderson et al. reported disability outcome and safety to be similar whether patients were maintained in a flat position or allowed to sit up, with a head elevation of 30 degrees, during the first 24 hours after stroke. The median time from stroke onset to out-of-bed activity and rehabilitation was 38 hours in the group that was lying flat. In the Efficacy and Safety of Very Early Mobilization within 24 Hours of Stroke Onset (AVERT) study, usual care included mobilization within the first 24 hours after stroke for most patients.<sup>1</sup> Moreover, shorter and more frequent mobilization soon after acute stroke has been shown to improve outcomes at 3 months.<sup>2</sup> The effect of restricting out-of-bed activity on outcomes for disability after an acute stroke is interesting, especially when considered in light of the reduced adherence to the practice of maintaining patients in a flat-lying position as opposed to a sitting-up position in the study by Anderson et al. (Table S5 in the Supplementary Appendix,

available with the full text of the article at NEJM.org). It would be interesting to examine the effect of discontinuation of the flat-lying position soon after stroke in an additional strict, per-protocol analysis.

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No potential conflict of interest relevant to this letter was reported.

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**THE AUTHORS REPLY:** Sibon et al. raise an appropriate question in regard to the potential benefits of lying flat after stroke in a highly selected group of patients — those with a large ischemic penumbra resulting from the proximal occlusion of a large vessel. We chose a study design that would allow for an efficient evaluation of a plausible, modest treatment effect in a large but carefully defined and broad group of patients with stroke. The lack of statistical heterogeneity across several predefined subgroups — including pathologic ischemic subtype — provides some reassurance regarding the consistency of a neutral effect on outcome. The well-balanced baseline characteristics of the participants indicate that our central method of randomization was robust.

We agree with Feldman et al. that informed consent remains the appropriate standard for the evaluation of interventions with uncertain or known benefits and harms. However, opt-out consent is increasingly being used for noninterventional registry studies to maximize participation and thus the external validity of the accumulated “real-world” data.<sup>1</sup> We believe that our decision to obtain consent by means of the cluster-guardian format was necessary, and this format was endorsed by the ethics committees at 114 hospitals in nine countries for several reasons: to minimize recruitment and selection bias; to

facilitate rapid implementation of the intervention in large numbers of patients by the clinical staff at different institutions, all in the chaos of emergency departments; and to avoid potential responder bias in the outcome assessments of patients (or surrogates) who may have thought they had received “nonstandard” care. Our decision to view the matter of head position as involving “low risk” was based on several considerations: the insufficient amount of level 1 evidence specifying the benefits and harms of head positioning for patients with acute stroke; the fact that people change their head position within the ranges being tested during routine hospital care and in daily life, as they shift from activity during the day to rest and sleep at night; and the view that patient care would not be compromised by either of the interventions.

Finally, Taito and Yamauchi raise an important point regarding an unresolved issue that should be addressed in another trial — that of the appropriate timing (and intensity) of early mobilization after acute stroke that follows from the

unexpected results of the AVERT trial.<sup>2</sup> Unfortunately, we did not collect data on the specific time that patients began to move outside the confines of the bed.

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Since publication of their article, the authors report no further potential conflict of interest.

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## Transplanting HCV-Infected Kidneys into Uninfected Recipients

**TO THE EDITOR:** Goldberg et al. (June 15 issue)<sup>1</sup> report cure of hepatitis C virus (HCV) infection, after transplantation of kidneys infected with HCV (genotype 1) into HCV-negative recipients, with the use of a 12-week course of elbasvir-grazoprevir. However, data on other types of solid-organ transplantation are lacking. Here, we report cure of HCV infection after accidental transmission of HCV from one organ donor to five different recipients (Table 1). The 55-year-old female donor did not belong to a group considered to be at high risk for HCV infection, and routine testing for anti-HCV IgG was negative. However, retrospective analysis revealed low-level HCV RNA (genotype 1a) viremia. All the transplant recipients were HCV-negative before transplantation and had development of HCV viremia in the early post-transplantation period. A 12-week course of different sofosbuvir-based anti-HCV regimens<sup>2-4</sup> was used to treat four of the patients. The liver-transplant recipient died from septic shock early after transplantation, before treatment could have been initiated. All four

recipients who received treatment currently have stable graft function and cure of HCV infection (sustained virologic response at week 12 after treatment).

In summary, we contribute further evidence that the early initiation of a sofosbuvir-based regimen is an efficient and safe treatment option in the context of different types of solid-organ transplantation from an HCV-positive donor to an HCV-negative recipient.

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No potential conflict of interest relevant to this letter was reported.

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